

3.0 Canonsburg, Pennsylvania, Disposal Site

3.1 Compliance Summary

The Canonsburg Disposal Site, inspected on October 29, 2003, was in excellent condition. The reconstructed bank downstream from the site along Chartiers Creek at Area C remains stable and was in excellent condition. Significant infestations of Canada thistle and poison hemlock were found on the east portions of the site and in Area C and will be controlled by DOE. Ground water monitoring showed uranium concentrations remained above the maximum concentration limit at two of four downgradient wells; however, the public health and environment are adequately protected. No need was identified for a follow-up or contingency inspection.

3.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Canonsburg, Pennsylvania, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Canonsburg, Pennsylvania, Disposal Site* (DOE/AL/62350-203, Rev. 0, U.S. Department of Energy [DOE], Albuquerque Operations Office, October 1995) and in procedures established by the DOE office at Grand Junction to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). Additionally, monitoring requirements established in the *Ground Water Compliance Action Plan* (Document No. U0035910, DOE-GJO, February 2000) are applicable. Site stewardship requirements are listed in Table 3-1.

Table 3-1. License Requirements for the Canonsburg, Pennsylvania, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Sections 3.1 and 7.0	Section 3.3.1
Follow-up or Contingency Inspections	Sections 3.2 and 6.2, Appendix E.4	Section 3.3.2
Routine Maintenance and Repairs	Section 6.1	Section 3.3.3
Ground Water Monitoring	Section 4.0 and the GCAP ^a	Section 3.3.4
Corrective Action	Section 4.4	Section 3.3.5

^aGround Water Compliance Action Plan.

3.3 Compliance Review

3.3.1 Annual Inspection and Report

The site, located between the communities of Canonsburg and Houston, Pennsylvania, was inspected on October 29, 2003. Features and photograph locations (PLs) mentioned in this report are shown on Figure 3-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

3.3.1.1 Specific Site Surveillance Features

Access, Gates, Fence, and Signs—Access to the site is directly from Strabane Avenue, a public right-of-way. The entrance gate, located at the southeast corner of the site along Strabane Avenue, was locked and in good condition. A vehicle gate located on the northeast side of the site was inoperable due to a corroded lock and thick vine growth. This gate is not used, so there is no need to replace the lock; however, DOE will remove the vines as part of routine maintenance of the security fence.

The site is surrounded by a chain link security fence with three strands of barbed wire at the top. The fence continues to rust but generally was in acceptable condition and remains secure. From the far western corner of the fence, north along the top of the bank above Chartiers Creek, to near perimeter sign P5, the concrete collar at the bottom of several fence posts was exposed. During site construction, DOE removed soil from this area to improve site drainage; however, all fence posts were stable.

The site has an entrance sign at the entrance gate and 11 perimeter signs. One perimeter sign was missing and another had corroded fasteners; DOE will replace the sign and fasteners in 2004. The entrance sign and the other perimeter signs were in good condition.

Site Markers and Monuments—The two site markers, three survey monuments, and three of the four boundary monuments were undisturbed and in excellent condition. Boundary monument BM-4 was not inspected because it is buried under riprap of the perimeter ditch.

Erosion control markers along the bank of Chartiers Creek were undisturbed. One of these markers, ECM-4A, was lost to erosion in 1996. This marker does not need to be replaced because the other marker in the pair, ECM-4, can be used for reference. No new erosion was noted along the bank.

Monitor Wells—The ground water monitoring network consists of six monitor wells which are sampled annually in accordance with the Long-Term Surveillance Plan and the Ground Water Compliance Action Plan. The wells were secure and in excellent condition.

DOE decommissioned all wells that were not required for compliance monitoring (18 wells) in September 2002. The former well sites were successfully restored and will no longer be inspected.

3.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into five areas referred to as transects: (1) the disposal cell; (2) the diversion channels and perimeter ditch; (3) the other areas on site; (4) the site perimeter; and (5) the outlying area.

Disposal Cell—The grass-covered disposal cell surface was in excellent condition. The grass is mowed and mulched annually, most recently in September 2003. There was no evidence of slumping, settling, erosion, or other modifying process.

3A

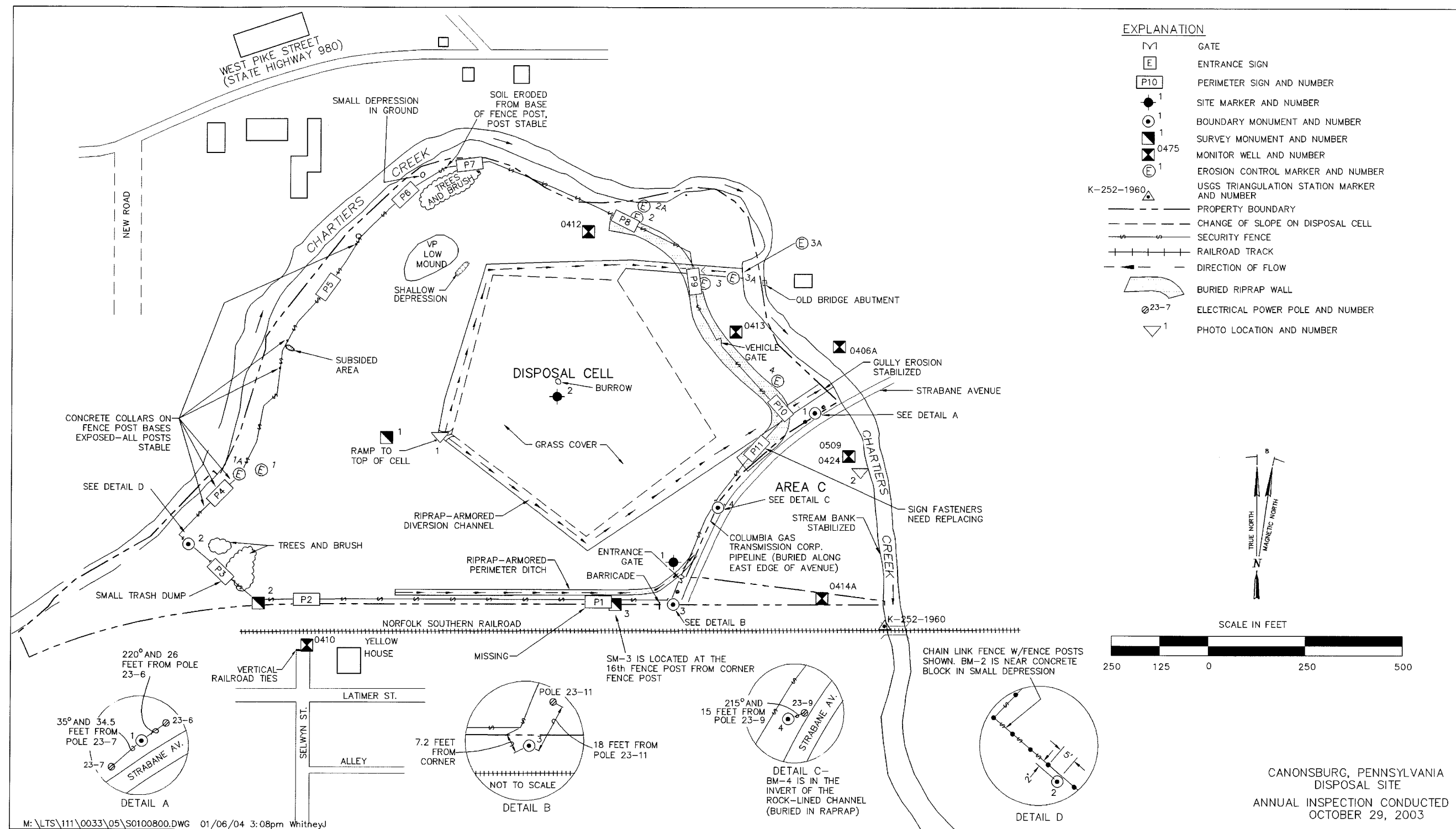


Figure 3-1. 2003 Annual Compliance Drawing for the Canonsburg, Pennsylvania, Disposal Site

Diversion Channels and Perimeter Ditch—Diversion channels around the disposal cell and the perimeter ditch along the south and east sides of the site are armored with riprap and were in good condition. As noted during previous inspections, individual rocks have deteriorated. Although the occurrences are few and rock deterioration is not considered to be a problem at this time, DOE will continue to monitor the rock condition in the channels and ditch.

3B

Vegetation in the diversion channels and perimeter ditch was treated with herbicide in 2002 and the dead woody plant material was removed in 2003. Some perennial vegetation, consisting primarily of grass-like plants, is re-establishing but currently is not impairing the function of the channels and ditch (PL-1).

Other Areas On Site—Thick grass covers the area from the diversion channels around the disposal cell outward to the security fence. This stand of grass extends beyond the security fence to the north and east as far as the bank of Chartiers Creek. The grass inside the site boundary, mowed and mulched annually in accordance with the Long-Term Surveillance Plan, was in excellent condition.

Several groves of large trees and bushes are in this transect. Dead trees and branches are removed periodically from these groves. The entire area inside the fence has a park-like appearance and is well kept.

3C

Poison hemlock was identified on the site. This biennial weed is not a listed noxious species in Pennsylvania; however, it poses a safety hazard to personnel who must walk through or work within infested areas, as all plant parts are poisonous. DOE is evaluating effective control measures for this plant.

Infestations of Canada thistle, a state-listed noxious weed, were located primarily in an area northeast of the disposal cell between the security fence and Chartiers Creek prior to 2001. The infestations were unsuccessfully treated with herbicide in 2001 and 2002. The thistle has spread to several locations within the security fence, including on the northeast side slope of the disposal cell. DOE is developing a new control strategy that may include a combination of mechanical and chemical treatments timed to most effectively control the weeds.

Site Perimeter—Trees, woody brush, and vines continue to encroach upon the security fence; however, the use of a tractor and brushhog is an effective and low-cost means of controlling vegetation in unwanted areas. Where terrain is too steep for the tractor, the vegetation is cleared by hand. Vegetation intertwined in the fence or weighing it down is also cleared by hand. This activity also includes application of herbicide along the bottom of the fence to retard reappearance of vegetation. Not only does removal of vegetation preserve and maintain the fence, it leaves the site appearing actively cared for and allows a better inspection of the fence and site perimeter.

Canada thistle plants were interspersed with healthy vegetation along the outside of the security fence on the north side of the property. DOE will conduct spot spraying at the appropriate time of year to kill the plants and prevent their spread; if unsuccessful, a new control strategy will be developed.

The property line on the northern half of the site runs along the bank of Chartiers Creek. There was no evidence of erosion along the creek bank.

Outlying Area—The site is surrounded by residential and commercial property. The area outward for a distance of approximately 0.25 mile was visually inspected for development or change in land use that might affect the safety or security of the site. No changes were observed.

3D Area C is a triangular, grass-covered property across Strabane Avenue east of the site. Area C was remediated as part of the mill site and is owned by the Commonwealth of Pennsylvania. It is not part of the disposal site, but DOE continues to cut the grass as a courtesy to the commonwealth. Pennsylvania solicited bids from the public for purchase of Area C. The sale has been put on hold pending agreement with DOE on deed restrictions limiting excavation in the area and preventing the area from being used for residential purposes. DOE must also have ongoing access to two ground water monitor wells and a surface water sampling location on Area C.

3E Erosion had occurred along the bank of Chartiers Creek at Area C after completion of remedial action. To correct this problem, DOE reconstructed and revegetated the bank between December 2000 and May 2001. The site inspection indicated that these efforts have stabilized the bank (PL-2). Seeded grass has established on the slope of the stream bank and native vegetation is establishing, but survival of willow plantings is limited mostly to the south end of the restored bank. DOE placed rock in a shallow erosion feature at the south end of the reconstructed bank earlier in 2003, and at the time of the inspection the area was stable.

During the Chartiers Creek bank stabilization project, Area C was used as a staging area for heavy equipment and the entire surface was disturbed. A good cover of grass has established in most areas, but Canada thistle and poison hemlock have become established along the shoulder of the bank. The invasion of these species is attributed to the bank stabilization project, and DOE will control the plants in the same manner established for the infestations on DOE property.

3.3.2 Follow-up or Contingency Inspections

No follow-up or contingency inspections were required in 2003.

3.3.3 Routine Maintenance and Repairs

DOE mowed grass, removed vegetation along the perimeter fence, and placed rock in a shallow erosion feature during 2003.

3.3.4 Ground Water Monitoring

3F DOE monitors ground water and surface water at the Canonsburg site to comply with requirements in the Long-Term Surveillance Plan and the subsequent Ground Water Compliance Action Plan. The purpose of the monitoring is to evaluate contaminant trends in ground water in the shallow unconfined aquifer, which consists of unconsolidated soils, stream deposits, and clean fill.

The monitoring network consists of six wells completed in the shallow unconfined aquifer and three surface water locations in Chartiers Creek (Figure 3-1). The Long-Term Surveillance Plan required sampling for two years after the site was licensed. This requirement was met by sampling in 1996 and 1997. However, because the concentration of uranium in some wells remains above the maximum concentration limit of 0.044 milligrams per liter (mg/L), DOE continues to monitor these locations annually. DOE also has monitoring requirements, including four of the above wells (three of which are considered point of compliance wells) and one surface location (point of exposure), for at least 5 years (through 2004), to verify compliance with alternate concentration limits established by the Ground Water Compliance Action Plan. The Long-Term Surveillance Plan is being revised to combine these separate requirements into a comprehensive site-wide monitoring program.

Molybdenum and uranium are the target analytes identified in the Long-Term Surveillance Plan. Target analytes under the Ground Water Compliance Action Plan are molybdenum, uranium, and manganese. Maximum concentration limits for molybdenum (0.1 mg/L) and uranium (0.044 mg/L) are established in Table 1 to Subpart A of 40 CFR 192. There is no standard for manganese; however, the performance standard adopted by the Ground Water Compliance Action Plan for manganese (0.05 mg/L) is the secondary drinking water standard established in 40 CFR 143.3. An alternate concentration limit of 1.0 mg/L was established for uranium in ground water in the Ground Water Compliance Action Plan for the point of compliance wells. An alternate concentration limit of 0.01 mg/L was established for the point of exposure surface water location.

Molybdenum concentrations were at or below the laboratory detection limit and significantly below the maximum concentration limit in all ground water samples collected in October 2003. The concentrations of molybdenum in the Chartiers Creek samples, as in the past, were higher than in ground water samples, though still below the maximum concentration limit. The elevated and generally consistent levels in the creek indicate a significant ambient or upstream source of molybdenum.

Uranium is the analyte of primary concern at this site because of the frequency with which it has exceeded its maximum concentration limit of 0.044 mg/L; time-concentration plots for uranium in ground water are shown in Figure 3-2. Uranium concentrations in ground water exceeded the standard at two of the downgradient wells (MW-0412 and MW-0413). Concentrations at these two locations have increased during the last 2 years and future results will be evaluated to determine if there is a trend. Uranium levels were substantially below the standard at the rest of the locations in 2003. Uranium concentrations were below the laboratory detection limit at all sampling locations in Chartiers Creek.

Manganese levels exceed the secondary drinking water standard at all point of compliance wells. Results from October 2003 are generally consistent with results from previous years. Manganese concentration in surface water at the point of exposure location in Chartiers Creek has decreased and is currently just above the secondary drinking water standard.

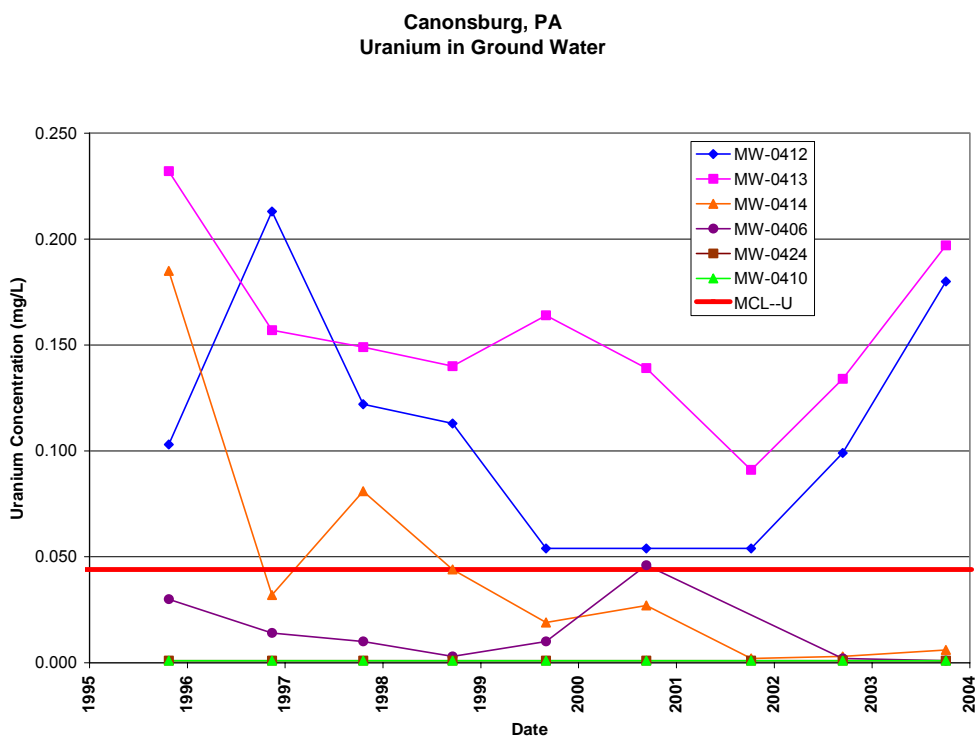


Figure 3-2. Uranium in Ground Water at the Canonsburg, Pennsylvania, Disposal Site

DOE continues to consider the risk associated with uranium in ground water to be negligible because institutional controls, in the form of government ownership of the site, prevent access to the ground water, and because uranium concentrations are below detection limits in Chartiers Creek. Therefore, public health and the environment are adequately protected.

3.3.5 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2003.

3.3.6 Photographs

Table 3-2. Photographs Taken at the Canonsburg, Pennsylvania, Disposal Site

Photograph Location Number	Azimuth	Description
PL-1	15	Vegetation encroachment in the western diversion channel.
PL-2	170	The stabilized bank of Chartiers Creek along Area C.



CAN 10/2003. PL-1. Vegetation encroachment in the western diversion channel.



CAN 10/2003. PL-2. The stabilized bank of Chartiers Creek along Area C.

End of current section